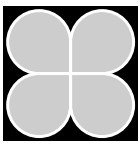
HPDC-10 Program

Tenth IEEE International Symposium on High Performance Distributed Computing (HPDC-9)



HIGH PERFORMANCE DISTRIBUTED COMPUTING

The Nikko Hotel
San Francisco, California
August 7–9, 2001

The Institute of Electrical and Electronic Engineers International Symposium on High Performance Distributed Computing (HPDC) provides a forum for presenting the latest research findings that unify parallel and distributed computing. In HPDC environments, parallel or distributed computing techniques are applied to the solution of computationally intensive applications across networks of computers.

Sponsors:

Institute of Electrical and Electronic Engineers COMPUTER SOCIETY

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HIGH PERFORMANCE DISTRIBUTED COMPUTING

HPDC-10 Symposium Highlight

MONDAY, AUGUST 6, 2001

7 am – 5 pm	REGISTRATION
9 am – 5 pm	**Full Day Tutorial 1**
9 am – 12 noon	**Half Day Tutorial 3**
1:30 – 5 pm	**Half Day Tutorials 4, 6**
8 am – 5:30 pm	**Workshop on Active Middleware Services (AMS-2)**
1 – 5 p.m.	**Workshop on Advanced Collaborative Environments**

TUESDAY, AUGUST 7, 2001

7 – 8:30 am	REGISTRATION
7 – 8:30 am	CONTINENTAL BREAKFAST
8:40 – 9 am	WELCOME
9 – 10 am	**Opening Keynote Address**
10 – 10:30 am	REFRESHMENT BREAK
10:30 am – 12 noon	**SESSION 1: Invited Talks**
12 noon – 1:30 pm	LUNCH
1:30 – 3 pm	**SESSION 2: Parallel Tracks 1, 2, 3**
3 – 3:30 pm	REFRESHMENT BREAK
3:30 – 5 pm	**SESSION 3: Parallel Tracks 1, 2, 3**
5:30 – 7:30 pm	**Evening Reception, Poster Session, and Demonstrations**

WEDNESDAY, AUGUST 8, 2001

8 – 9 am	REGISTRATION
8 – 9 am	CONTINENTAL BREAKFAST
9 – 10 am	**Keynote Address**
10 – 10:30 am	REFRESHMENT BREAK
10:30 am – 12 noon	**SESSION 1: Invited Talks**
12 noon – 1:30 pm	LUNCH
1:30 – 3 pm	**SESSION 2: Parallel Tracks 1, 2, 3**
3 – 3:30 pm	REFRESHMENT BREAK
3:30 – 4:30 pm	**SESSION 3: Parallel Tracks 1, 2, 3**
6:15 pm	BUSES DEPART FOR CRUISE
7 – 11 pm	**Evening Conference Banquet Cruise**

THURSDAY, AUGUST 9, 2001

8 – 9 am	REGISTRATION
8 – 9 am	CONTINENTAL BREAKFAST
9 – 11 am	**SESSION 1: Parallel Tracks 1, 2**
11 am	MEETING ADJOURNS
11:30 am – 6:15 pm	**Globus Retreat**

FRIDAY, AUGUST 10, 2001

8 am – 3 pm	**Globus Retreat**

HPDC-10 Program

MONDAY, AUGUST 6, 2001

7:00 a.m. – 5:00 p.m.

REGISTRATION

Nikko Ballroom Foyer

HPDC Tutorials

9:00 a.m. – 5:00 p.m.

Full Day Tutorial

TUTORIAL 1: High Performance and Grid Programming in Java and Python

Monterey II

PRESENTERS:

Vladimir Getov, University of Westminster
José E. Moreira, IBM Thomas J. Watson Research Center
Gregor von Laszewski, Argonne National Laboratory
Keith Jackson, Lawrence Berkeley Laboratory

9:00 a.m. – 12:00 noon

Tutorial 3 *(half-day)*

TUTORIAL 3: Grid Computing and the Globus Toolkit – I

Carmel I

PRESENTER:

Carl Kesselman, USC ISI

1:30 – 5:00 p.m.

Tutorials 4, 6 *(half-day each)*

TUTORIAL 4: Grid Computing and the Globus Toolkit – II

Carmel I

PRESENTER:

Carl Kesselman, USC ISI

TUTORIAL 6: Diagnosing Poor Wide-Area-Network Performance

Carmel II

PRESENTERS:

John S. Estabrook and Jim Ferguson, NCSA

Workshops Associated with HPDC-10

8:00 a.m. – 5:30 p.m.

Workshop on Active Middleware Services (AMS-3)

Nikko II

l:00 – 5:00 p.m.

Golden Gate Room

Workshop on Advanced Collaborative Environments

TUESDAY, AUGUST 7, 2001

7:00 – 8:30 a.m.

REGISTRATION

Nikko Ballroom Foyer

7:00 – 8:30

CONTINENTAL BREAKFAST

Monterey Room

8:40 – 9:00 a.m.

WELCOME

Nikko Ballroom

GENERAL CHAIR:
Ian Foster, Argonne National Laboratory and the University of Chicago

PROGRAM CHAIR:
William Johnston, Lawrence Berkeley Laboratory and NASA Ames Research Center

9:00 – 10:00 a.m.

OPENING KEYNOTE ADDRESS

SESSION CHAIR:
Dan Reed, NCSA

Nikko Ballroom

Computing for Supernova Cosmology

Peter Nugent, National Energy Research Scientific Computing Center (NERSC), Lawrence Berkeley National Laboratory

10:00 – 10:30 a.m.

REFRESHMENT BREAK

Nikko Ballroom Foyer

10:30 – 12:00 noon

SESSION 1: Invited Talks

Nikko Ballroom

CHAIR:
Ian Foster, Argonne National Laboratory and the University of Chicago

1. **Solving NUG-30 using Condor**
   Miron Livny, University of Wisconsin
2. **Using a Distributed Object Database in a Grid Environment**
   Leon Guzenda, Objectivity
3. **Grid Computing**
   David Turek, IBM

12:00 – 1:30 p.m.

LUNCH

Monterey Room

1:30 – 3:00 p.m.

SESSION 2: Parallel Tracks

TRACK 1: Application Studies

Nikko I

CHAIR: *Bill Feiereisen, NASA Ames Research Center*

1. **Adaptable Mirroring in Cluster Servers**
   Ada Gavrilovska, Karsten Schwan and Van Oleson, Georgia Institute of Technology
2. **Studying Protein Folding on the Grid: Experiences using CHARMM on NPACI Resources under Legion**
   Anand Natrajan, University of Virginia; Michael Crowley, The Scripps Research Institute; Nancy Wilkins-Diehr, San Diego Supercomputing Center, University of California at San Diego; Marty A. Humphrey, Anthony D. Fox and Andrew S. Grimshaw, University of Virginia; Charles L. Brooks III, The Scripps Research Institute
3. **A CORBA-based Development Environment for Wrapping and Coupling Legacy Codes**
   Gregory Follen, Chan Kim and Issac Lopez, NASA Glenn Research Center; Janche Sang, Cleveland State University; Scott Townsend, NASA Glenn Research Center

TRACK 2: Grid Middleware

Nikko II

CHAIR:
Alan Karp, Hewlett-Packard

1. **Middleware Support for Global Access to Integrated Computational Collaboratories**
   Vijay Mann and Manish Parashar, Rutgers University

2. **PAWS: Collective Interactions and Data Transfers**
   Partricia Fasel, Katarzyna Keahey and Susan Mniszewski, Los Alamos National Laboratory

3. **Condor-G: A Computation Management Agent for Multi-Institutional Grids**
   James Frey and Todd Tannenbaum, University of Wisconsin, Madison; Ian Foster, Argonne National Laboratory and University of Chicago; Miron Livny, University of Chicago; Steven Tuecke, Argonne National Laboratory

TRACK 3: Management of Large Datasets

Bay View Room *(25th Floor)*

CHAIR:
Ian Foster, Argonne National Laboratory and the University of Chicago

1. **Models for Replica Synchronisation and Consistency in a Data Grid**
   Dirk Düllmann, CERN; Wolfgang Hoschek, CERN and University of Linz; Javier Jaen-Martinez, CERN; Asad Samar, California Institute of Technology; Ben Sega, CERN; Heinz Stockinger and Kurt Stockinger, CERN and University of Vienna

2. **File and Object Replication in Data Grids**
   Heinz Stockinger, CERN and University of Vienna; Asad Samar, California Institute of Technology; Bill Allcock, Argonne National Laboratory; Ian Foster, Argonne National Laboratory and University of Chicago; Koen Holtmanan, California Institute of Technology; Brian Tierney, CERN and Lawrence Berkeley National Laboratory

3. **Distributed Data Access and Resource Management in the D0 SAM System**
   I. Terekhov, R. Pordes, V.White, L. Lueking and L. Carpenter, Fermi National Accelerator Laboratory; H. Schellman, Northwestern University; J. Trumbo, S. Veseli and M. Vranicar, Fermi National Accelerator Laboratory

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3:00 – 3:30 p.m.

REFRESHMENT BREAK

Nikko Foyer

3:30 – 5:00 p.m.

SESSION 3: Parallel Tracks

TRACK 1: Security

Nikko I

CHAIR:
Marty Humphrey, University of Virginia

1. **Security Implications of Typical Grid Computing Usage Scenarios**
   Marty Humphrey, University of Virginia; Mary R. Thompson, Lawrence Berkeley National Laboratory

2. **Initial Experiences with an Online Certificate Repository for the Grid: MyProxy**
   Jason Novotny, Lawrence Berkeley National Laboratory; Steven Tuecke, Argonne National Laboratory; Von Welch, University of Chicago and Argonne National Laboratory

TRACK 2: Network QoS

Nikko II

CHAIR:
Bill Nitzberg, Veridian, PBS Products

1. **End-to-End Provision of Policy Information for Network QoS**
   Volker Sander, Forschungszentrum Juelich GmbH; William A. Adamson, University of Michigan; Ian Foster, Argonne National Laboratory and University of Chicago; Alain Roy, University of Chicago

2. **QoS-Aware Dependency Management for Component Based Systems**
   Yi Cui and Klara Nahrstedt, University of Illinois, Urbana-Champaign

TRACK 3: Metascheduling Performance

Bay View Room *(25th Floor)*

CHAIR:
Jennifer Schopf, Northwestern University and Argonne National Laboratory

1. **Livelock Avoidance for Meta-schedulers**
   John Jardine, Quinn Snell and Mark Clement, Brigham Young University

2. **Active Yellow Pages: A Pipelined Resource Management Architecture for Wide-Area Network Computing**
   Dolors Royo, Universitat Politècnica de Catalunya; Nirav H. Kapadia and Jose A. B. Fortes, Purdue University; Luis Diaz de Cerio, Universitat Politècnica de Catalunya

3. **A Case for TCP Vegas in High-Performance Computational Grids**
   Eric Weigle, Los Alamos National Laboratory; Wu-chun Feng, Los Alamos National Laboratory and Ohio State University

5:30 – 7:30 p.m.

Evening Reception, Poster Session and Demonstrations

Nikko III

POSTERS:

Metadebugging in the HARNESS Metacomputing Framework

R. Lovas, Hungarian Academy of Sciences and Emory University; V. Sunderam, Emory University

Nomadic Migration: A New Tool for Dynamic Grid Computing

G. Lanfermann, G. Allen and T. Radke, Max-Planck-Institut fur Gravitationsphysik; E. Seidel, Max-Planck-Institut fur Gravitationsphysik and National Center for Supercomputing Applications

Interfacing Parallel Jobs to Process Managers

B. Toonen, D. Ashton, E. Lusk, I. Foster, W. Gropp, Argonne National Laboratory; Edgar Gabriel, High Performance Computing Center Stuttgart; Ralph Butler, University of Murfreesboro; Nicholas Karonis, Northern Illinois University

Dynamic Replica Management in the Service Grid

B. Lee, J. Weissman, University of Minnesota, Twin Cities

Efficient Techniques for Distributed Computing

T. Dramlitsch, G. Allen, Max-Planck-Institut fur Gravitationsphysik; E. Seidel, Max- Planck-Institut fur Gravitationsphysik and National Center for Supercomputing Applications

Active Streams and the Effects of Stream Specialization

F.Bustamante, G. Eisenhauer and K. Schwan, Georgia Institute of Technology

Security Considerations for Computational and Data Grids

W. Johnston, Lawrence Berkeley National Lab and NASA Ames Research Center; K. Jackson, Lawrence Berkeley National Lab; S. Talwar, NASA Ames Research Center

Applying Grid Technologies to Bioinformatics

M. Karo, Christopher Dwan, John Freemanand Jon Weissman, University of Minnesota, Minneapolis; Miron Livny, University of Wisconsin, Madison; Ernest Retzel, University of Minnesota, Minneapolis

Data Logistics in Networking: The Logistical Session Layer

M. Swany, R. Wolsi, University of Tennessee

WEDNESDAY, AUGUST 8, 2001

8:00 – 9:00 a.m.

REGISTRATION

Nikko Ballroom Foyer

8:00 – 9:00 a.m.

CONTINENTAL BREAKFAST

Monterey Room

9:00 – 10:00 a.m.

KEYNOTE ADDRESS

Nikko Ballroom

SESSION CHAIR:
Fran Berman, San Diego Supercomputer Center, UCSD

Component Frameworks

Dennis Gannon, Department of Computer Science, Indiana University

10:00 – 10:30 a.m.

REFRESHMENT BREAK

Monterey Room

10:30 – 12:00 noon

SESSION 1: Invited Talks

Nikko Ballroom

CHAIR:
William Johnston, Lawrence Berkeley National Laboratory and NASA Ames Research Center

1. **High Performance Peer to Peer Computing Using Wavelength Disk Drives**
   Bill St. Arnaud, CANARIE
2. **Convergence at the Extremes: Common Challenges in Tiny Sensor Networks and Immense Services**
   David Culler, University of California, Berkeley
3. **Design of Entropia's Distributed Computing Grid**
   Andrew Chien, Entropia

12:00 – 1:30 p.m.

LUNCH

Monterey Room

1:30 – 3:00 p.m.

SESSION 2: Parallel Tracks

TRACK 1: Resource Discovery

Nikko I

Chair: Thomas Wicks, The Boeing Company

1. **Evaluation of a Resource Selection Mechanism for Complex Network Services**
   Julio C. López and David R. O'Hallaron, Carnegie Mellon University

2. **Grid Information Services for Distributed Resource Sharing**
   Karl Czajkowski, University of Southern California; Steven Fitzgerald, California State University, Northridge; Ian Foster, University of Chicago and Argonne National Laboratory; Carl Kesselman, USC/ISI

3. **Location Selection for Active Services**
   Roger Karrer and Thomas Gross, ETH Zurich

TRACK 2: Problem Solving Environments

Nikko II

CHAIR:

Piyush Mehrotra, NASA Ames Research Center

1. **The Astrophysics Simulation Collaboratory Portal: Case Study of a Grid-Enabled Application Environment**
   Michael Russell, University of Chicago; Gabrielle Allen, Max-Planck-Institut fur Gravitationsphysik; Greg Daues, National Center for Supercomputing Applications; Ian Foster, University of Chicago and Argonne National Laboratory; Tom Goodale, Edward Seidel and Jason Novotny, University of Chicago; John Shalf, University of Chicago and National Center for Supercomputing Applications; Wai-Mo-Suen, Washington University; Gregor von Laszewski, Argonne National Laboratory

2. **The GridPort Toolkit Solutions: An Architecture for Building Grid Portals**
   Mary Thomas, Steve Mock, Jay Boisseau, Maytal Dahan, Kurt Mueller and Don Sutton, San Diego Supercomputer Center

3. **Open Data Management Solutions for Problem Solving Environments: Application of Distributed Authoring and Versioning (DAV) to the Extensible Computational Chemistry Environment**
   Karen Schuchardt, James Myers and Eric Stephan, Pacific Northwest National Laboratory

TRACK 3:
Support for Network Applications

Carmel Room

CHAIR:
Wu-chun Feng, Los Alamos National Laboratory and Ohio State University

1. **Bandwidth Monitoring for Network-Aware Applications**
   J. Bolliger and T. Gross, ETH Zurich

2. **The Architecture of the Remos System**
   Peter Dinda, Northwestern University; Thomas Gross and Roger Karrer, ETH Zurich; Bruce Lowekamp, College of William and Mary; Nancy Miller, Peter Steenkiste and Dean Sutherland, Carnegie Mellon University

3. **Reducing Delay With Dynamic Selection of Compression Formats**
   Chandra Krintz and Brad Calder, University of California, San Deigo

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3:00 – 3:30 p.m.

REFRESHMENT BREAK

Nikko Ballroom Foyer

3:30 – 4:30 p.m.

SESSION 3: Parallel Sessions

TRACK 1: Networking Monitoring

Nikko I

CHAIR:
Ken Freeman, NASA Ames Research Center

1. **Enabling Network-Aware Applications**
   Brian L. Tierney, Dan Gunter, Jason Lee and Martin Stoufer, Lawrence Berkeley National Laboratory

2. **Network Characterization Service (NCS)**
   Jin Guojun, George Yang, Brian Crowley and Deb Agarwal, Lawrence Berkeley National Laboratory

TRACK 2: Optimizing Performance

Nikko II

CHAIR:
Satoshi Sekiguchi, Research Institute of Information Technology

1. **Cooperative Caching Middleware for Cluster-Based Servers**
   Francisco Matias Cuenca-Acuna and Thu D. Nguyen, Rutgers University

2. **NAS Grid Benchmarks: A Tool for Grid Space Exploration**
   Michael Frumkin, NASA Ames Research Center; Rob F. Van der Wijngaart, Computer Sciences Corporation

TRACK 3:
High Performance I/O & File System

Carmel Room

CHAIR:
Ray Bair, Pacific Northwest National Laboratory

1. **The Kangaroo Approach to Data Movement on the Grid**
   Douglas Thain, Jim Basney, Se-Chang Son and Miron Livny, University of Wisconsin-Madison

2. **The PUNCH Virtual File System: Seamless Access to Decentralized Storage Services in a Computational Grid**
   Renato J. Figueiredo, Nirav H. Kapadia and Jose A. B. Fortes, Purdue University

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6:15 p.m.

Buses depart for Cruise

7:00 – 11:00 p.m.

Evening Conference Banquet Cruise

Enjoy an evening cruise on San Francisco Bay with the famous Hornblower Cruises.

THURSDAY, AUGUST 9, 2001

8:00 – 9:00 a.m.

REGISTRATION

Nikko Ballroom Foyer

8:00 – 9:00 a.m.

CONTINENTAL BREAKFAST

Monterey

9:00 – 11:00 a.m.

SESSION 1: Parallel Tracks

TRACK 1: Parallel & Distributed Algorithms

Nikko I

CHAIR:
Satoshi Matsuoka, Tokyo University of Technology

1. **Wide-Area Transposition-Driven Scheduling**
   John W. Romein and Henri E. Bal, Vrije University

2. **Parallel Retrograde Analysis on Different Architecture**
   Ren Wu, Hewlett-Packard;
   Don Beal, University of Queen Mary, University of London.

3. **Massively Parallel Distributed Feature Extraction in Textual Data Mining Using HDDI™**
   Jirada Kuntraruk and William M. Pottenger, Lehigh University

4. **Open Metadata Formats: Efficient XML-Based Communication for High Performance Computing**
   Patrick Widener, Greg Eisenhauer and Karsten Schwan, Georgia Institute of Technology

TRACK 2: Application Scheduling

Nikko II

CHAIR:
Salim Hariri, University of Arizona

1. **Online Prediction of the Running Time of Tasks**
   Peter A. Dinda, Northwestern University

2. **Multi-resolution Resource Behavior Queries Using Wavelets**
   Jason Skicewicz, Peter Dinda and Jennifer M. Schopf, Northwestern University

3. **A Study of Deadline Scheduling for Client-Server Systems on the Computational Grid**
   Atsuko Takefusa, Tokyo Institute of Technology; Henri Casanova, University of California, San Diego; Stoshi Matsouka, Tokyo Institute of Technology; Francine Berman, University of California, San Diego

4. **Practical Resource Management for Grid-based Visual Exploration**
   Karl Czajkowski, Alper K. Demir, Carl Kesselman and Marcus Thiebaux, University of Southern California

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11:30 – 6:15 p.m.

Globus Retreat

Monterey Room

FRIDAY, AUGUST 10, 2001

8:00 a.m. – 3:00 p.m.

Globus Retreat

Monterey Room

CONFERENCE COMMITTEE:

General Chair:

Ian Foster, Argonne National Laboratory and University of Chicago

Program Committee Chair:

William Johnston, Lawrence Berkeley National Laboratory and NASA Ames Research Center

Local Arrangements Chair:

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Ken Freeman, NASA Ames Research Center

Tutorial Chair:

Jon Weissman, University of Minnesota

Publicity Chair:

Jon Bashor, Lawrence Berkeley National Laboratory

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Ian Foster, Argonne National Laboratory and University of Chicago

Andrew Grimshaw, University of Virginia, Charlottesville, Virginia, USA

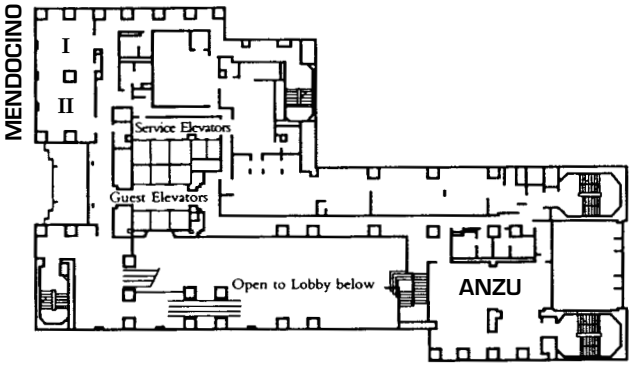
C. S. Raghavendra, University of Southern California, USA

Peter Steenkiste, Carnegie Mellon University, USA

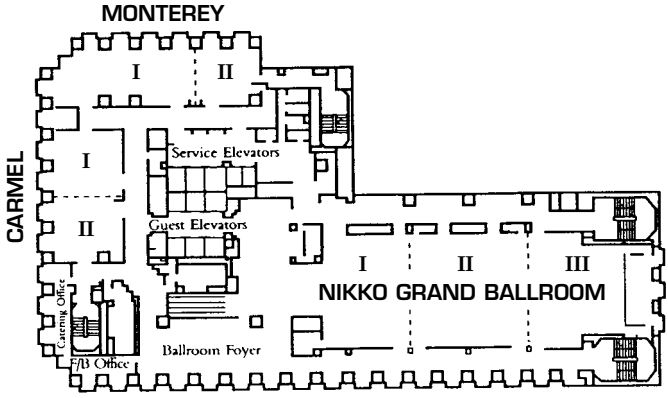
Administration Chair:

Paul A. Baltes, Engineering Professional Development, The University of Arizona

2nd Floor



3rd Floor



25th Floor